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ities of the brighter stars south of -30° Declination, was completed by the John A. Brashear Company on June 20th. The $9\frac{3}{4}$ -inch convex secondary mirror has likewise been completed. Both are en route to Mt. Hamilton. The telescope mounting, designed in general plan by the Director, and in detail by the builders, HARRON, RICKARD & McCONE, of San Francisco, has for several months been set up for trial in the rear of the Observatory buildings. A three-prism spectrograph, designed by the Director, optical parts by BRASHEAR, and mounting by our instrument-maker, has been completed and tested. A modern steel dome, 30 feet in diameter, has been constructed by the Warner & Swasey Company. It is hoped that the expedition may be able to sail early in August for Valparaiso, to occupy a station near Santiago, Chile.

July 1, 1902.

W. W. CAMPBELL.

NOTE ON VARIABLE STARS.

Harvard College Observatory Circular No. 65, under date of May 6th, contains the announcement of an interesting new variable star of the *Algol* type:—

“A striking illustration of the value of the library of glass photographs collected at this observatory during the past seventeen years has been shown within the last few days. Comet *a* 1902 was discovered by Dr. BROOKS on April 14th, and it was found that a photograph had been taken here on April 3d with the 8-inch Draper telescope, approximately in the direction from which the comet came. An examination of this plate was accordingly made by Mrs. FLEMING, superposing it upon another plate of the same region taken with the same instrument on March 7, 1900. No trace of the comet was found, and in fact the elements now indicate that it was a little beyond the region covered by the photograph. One star, however, in the constellation *Lacerta*, according to HEIS, but in *Cygnus* according to the *Uranometria Nova*, appeared faint on the early plate and bright on that taken later. A further examination showed that this object was the north-preceding component of $+43^\circ.4101$. Its position for 1900 is R. A. = $21^h 55.2^m$, Dec. = $+43^\circ 52'$. The difference in Right Ascension of the two components is about $2^s.0$; the difference in Declination, $0'.3$. A further examination showed that the star was generally bright and constant in light, so that it must be a variable of the *Algol* type.”

An examination showed that this star had been photographed 407 times. On 388 of the plates the star was of maximum brightness (8.9), but on the other 19 plates the magnitude was less than 8.9. From a discussion of this

material, Professor PICKERING concludes that the period of the variable is 31.4 days, more than three times as long as that of any other known star of the *Algol* type. The star remains at maximum brightness for 28 days, and takes about three days to go through its minimum, decreasing from 8.9 to 11.6 magnitude.

This star was observed here photometrically with the 12-inch equatorial on the nights of June 29th, 30th, and July 1st. The actual minimum was not obtained, as it came in the daytime, but a curve through the observations shows that the minimum occurred at a time very close to that predicted by Professor PICKERING. The next minimum, July 31^d 19^h 26^m G. M. T., will be more favorable, and it is hoped to obtain observations of it.

I have also under observation a list of about twenty other new variable stars, and four variables of very faint minima are being followed with the 36-inch refractor.

S. D. TOWNLEY.

MEASUREMENT OF CLOSE DOUBLE STARS.

Dr. HERMANN STRUVE, Director of the Königsberg Observatory, has recently advanced a doctrine in reference to the measurement of close double stars which will hardly be acceptable to double-star observers, who have the use of telescopes of the largest sizes and good atmospheric conditions. He states it as his opinion that, even under the most favorable circumstances, when the distance between the components of a double star is less than 0".40 approximate estimations only of the position-angle can be obtained, and when the distance is under 0".50 that it has not been demonstrated that the distance is given more accurately by micrometer measurement than by mere estimation, and, further, he regards the results of the attempts which have been made to supply this demonstration as purely illusory.

Every one of experience will, I think, be ready to admit that when an observer has become accustomed to a given telescope and given eye-pieces in connection with it, he may acquire an accuracy in the estimation of small angular distances which is surprisingly near the truth. But before he can make such estimates he must acquire a knowledge of the scale of his